

(12) **United States Patent**  
**Weibel et al.**

(10) **Patent No.:** US 7,099,837 B1  
(45) **Date of Patent:** Aug. 29, 2006

(54) **SYSTEM OF GENERATING BILLING STATEMENTS FOR PUBLISHED ADVERTISING**

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## FOREIGN PATENT DOCUMENTS

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WO	97/24680	7/1997

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(73) Assignee: **Electronic Imaging Systems of America, Inc.**, Rolling Meadows, IL (US)

Newspaper Back Office Process Now Available; PR Newswire, Jun. 23, 1998, p. 1.\*  
Media passage Announces Digital Tear Sheets; ClickzNews, Jun. 24, 1998.\*

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 249 days.

\* cited by examiner

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(74) *Attorney, Agent, or Firm*—Pauley Petersen & Erickson

(21) Appl. No.: 10/308,869

(22) Filed: **Dec. 3, 2002**

### Related U.S. Application Data

(63) Continuation-in-part of application No. 09/418,744, filed on Oct. 15, 1999, now Pat. No. 6,505,173.

(51) **Int. Cl.**  
**G06F 17/60** (2006.01)

(52) **U.S. Cl.** ..... 705/34; 705/30

(58) **Field of Classification Search** ..... 705/34,  
705/40; 707/104; 455/406, 408, 407; 348/114,  
348/118

See application file for complete search history.

(56) **References Cited**

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6,026,368 A 2/2000 Brown et al.

**8 Claims, 3 Drawing Sheets**

Electronic Imaging Systems ESA Daily News		1. DATE OF BILLING October 1988		2. ACCOUNT NUMBER Luo Burrell Sample	
3. BILLING PERIOD October 1988		4. CREDIT NUMBER 123456789		5. BILLING TYPE 1	
6. BILLING AMOUNT \$4,637.00		7. PAYMENT DUE DATE DUE 25 DAYS AFTER BILLING DATE		8. BILLING TYPE 1	
9. BILLING TYPE 1		10. BILLING TYPE 1		11. BILLING TYPE 1	
12. BILLING TYPE 1		13. BILLING TYPE 1		14. BILLING TYPE 1	
15. BILLING TYPE 1		16. BILLING TYPE 1		17. BILLING TYPE 1	
18. BILLING TYPE 1		19. BILLING TYPE 1		20. BILLING TYPE 1	
21. BILLING TYPE 1		22. BILLING TYPE 1		23. BILLING TYPE 1	
24. BILLING TYPE 1		25. BILLING TYPE 1		26. BILLING TYPE 1	
27. BILLING TYPE 1		28. BILLING TYPE 1		29. BILLING TYPE 1	
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42. BILLING TYPE 1		43. BILLING TYPE 1		44. BILLING TYPE 1	
45. BILLING TYPE 1		46. BILLING TYPE 1		47. BILLING TYPE 1	
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102. BILLING TYPE 1		103. BILLING TYPE 1		104. BILLING TYPE 1	
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108. BILLING TYPE 1		109. BILLING TYPE 1		110. BILLING TYPE 1	
111. BILLING TYPE 1		112. BILLING TYPE 1		113. BILLING TYPE 1	
114. BILLING TYPE 1		115. BILLING TYPE 1		116. BILLING TYPE 1	
117. BILLING TYPE 1		118. BILLING TYPE 1		119. BILLING TYPE 1	
120. BILLING TYPE 1		121. BILLING TYPE 1		122. BILLING TYPE 1	
123. BILLING TYPE 1		124. BILLING TYPE 1		125. BILLING TYPE 1	
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129. BILLING TYPE 1		130. BILLING TYPE 1		131. BILLING TYPE 1	
132. BILLING TYPE 1		133. BILLING TYPE 1		134. BILLING TYPE 1	
135. BILLING TYPE 1		136. BILLING TYPE 1		137. BILLING TYPE 1	
138. BILLING TYPE 1		139. BILLING TYPE 1		140. BILLING TYPE 1	
141. BILLING TYPE 1		142. BILLING TYPE 1		143. BILLING TYPE 1	
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147. BILLING TYPE 1		148. BILLING TYPE 1		149. BILLING TYPE 1	
150. BILLING TYPE 1		151. BILLING TYPE 1		152. BILLING TYPE 1	
153. BILLING TYPE 1		154. BILLING TYPE 1		155. BILLING TYPE 1	
156. BILLING TYPE 1		157. BILLING TYPE 1		158. BILLING TYPE 1	
159. BILLING TYPE 1		160. BILLING TYPE 1		161. BILLING TYPE 1	
162. BILLING TYPE 1		163. BILLING TYPE 1		164. BILLING TYPE 1	
165. BILLING TYPE 1		166. BILLING TYPE 1		167. BILLING TYPE 1	
168. BILLING TYPE 1		169. BILLING TYPE 1		170. BILLING TYPE 1	
171. BILLING TYPE 1		172. BILLING TYPE 1		173. BILLING TYPE 1	
174. BILLING TYPE 1		175. BILLING TYPE 1		176. BILLING TYPE 1	
177. BILLING TYPE 1		178. BILLING TYPE 1		179. BILLING TYPE 1	
180. BILLING TYPE 1		181. BILLING TYPE 1		182. BILLING TYPE 1	
183. BILLING TYPE 1		184. BILLING TYPE 1		185. BILLING TYPE 1	
186. BILLING TYPE 1		187. BILLING TYPE 1		188. BILLING TYPE 1	
189. BILLING TYPE 1		190. BILLING TYPE 1		191. BILLING TYPE 1	
192. BILLING TYPE 1		193. BILLING			

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**Electronic Imaging Systems**  
**EISA Daily News**  
 2200 Main Street, Suite 400, Naperville, Illinois 60563  
 TEL: 630-206-0000 FAX: 630-206-0001  
 WEB: www.eisa.com

<b>BILLING PERIOD</b>		<b>ADVERTISING INFORMATION</b>	
October 1998		Leo Burnett Sample	
<b>BILLING PERIOD</b>		<b>BILLING PERIOD</b>	
\$4,637.00		DUE 25 DAYS AFTER BILLING DATE	
<b>GRAND TOTAL DUE</b>		<b>GRAND TOTAL DUE</b>	
\$4,637.00		-0-	

<b>BILLING DATE</b>	<b>BILLING ACCOUNT NAME AND ADDRESS</b>	<b>NOTICE REQUEST</b>
Nov. 1, 1998	Leo Burnett Sample 1323 Main Street, Ste 202 Naperville, MA 12345	
<b>BILLING ACCOUNT NUMBER</b>		
AGE 4678		
<b>ADVERTISING CLERK NAME</b>		
LB-463		

PLEASE DETACH AND RETURN UPPER PORTION WITH YOUR REMITTANCE

DATE	RECEIVED REFERENCE	RECEIVED FROM COMPANY/ADDRESS	CHECK NUMBER	NET AMOUNT
10/2	10298-2-7	Circuit City		\$4,637.00

**STATEMENT OF ACCOUNT** **AMOUNT OF PAID DUE INCREASE**

<b>CURRENT NET AMOUNT DUE</b>	<b>TO DAYS</b>	<b>NO DAYS</b>	<b>OVER 90 DAYS</b>	<b>ADVERTISED INCREASE</b>	<b>TOTAL INCREASE DUE</b>
\$4,637.00					\$4,637.00

**EISA Daily** 2200 Main Street, Suite 400, Naperville, Illinois 60563

<b>BILLING PERIOD</b>	<b>ADVERTISING INFORMATION</b>	<b>BILLING ACCOUNT NUMBER</b>	<b>ADVERTISING CLERK NAME</b>

FIG. 1

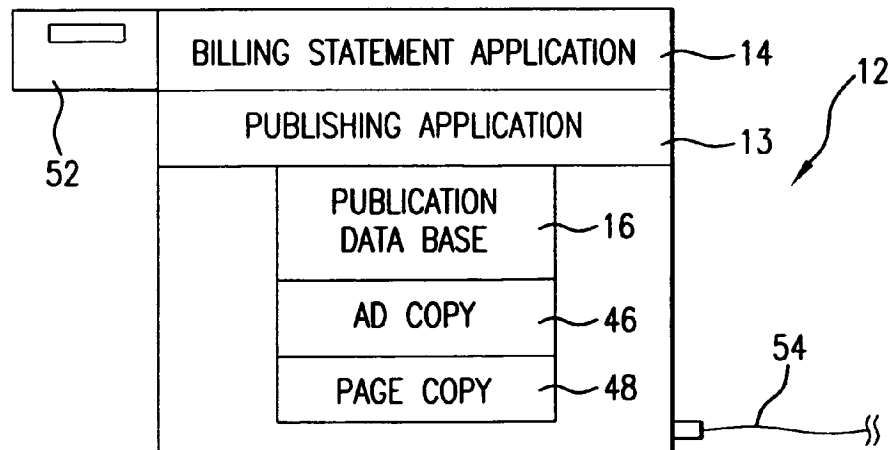
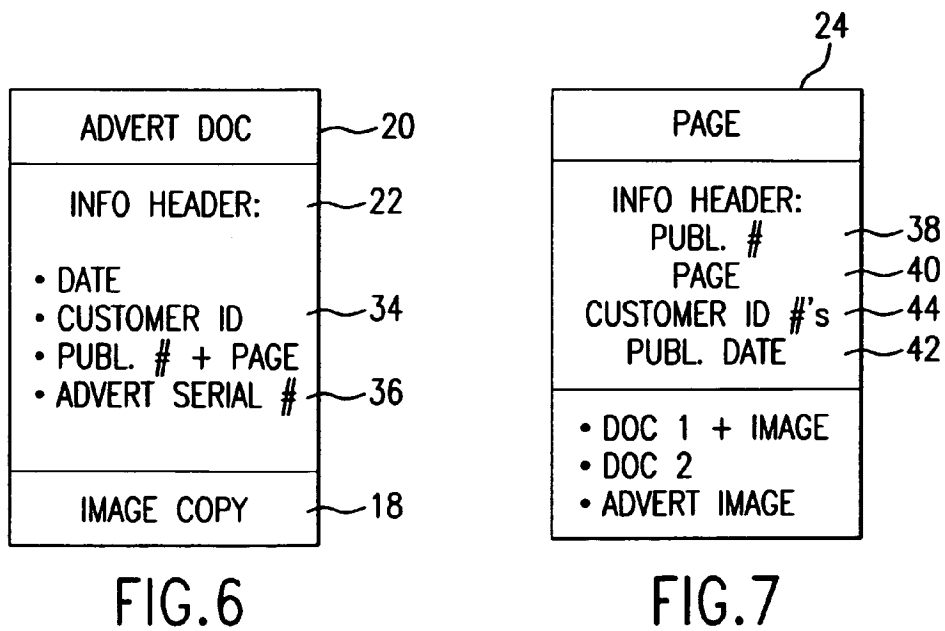
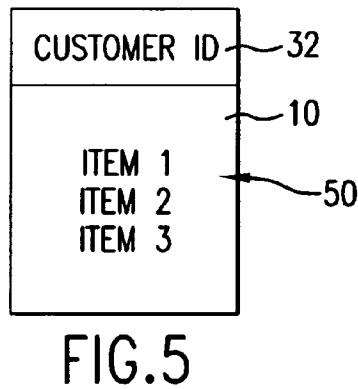
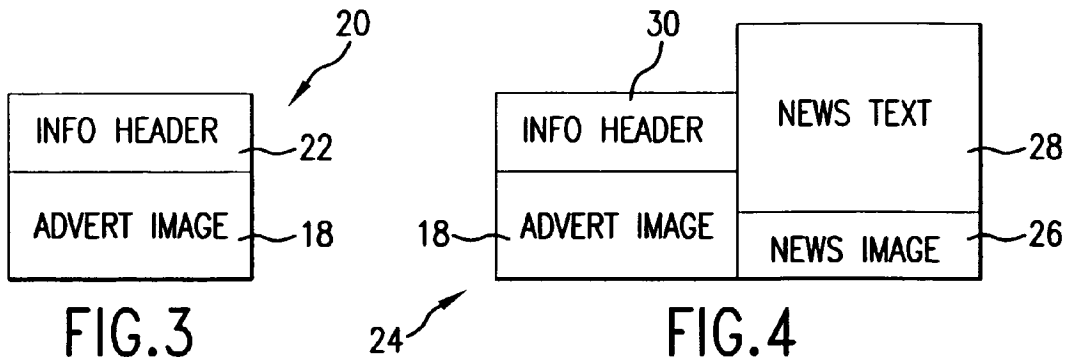


FIG. 2



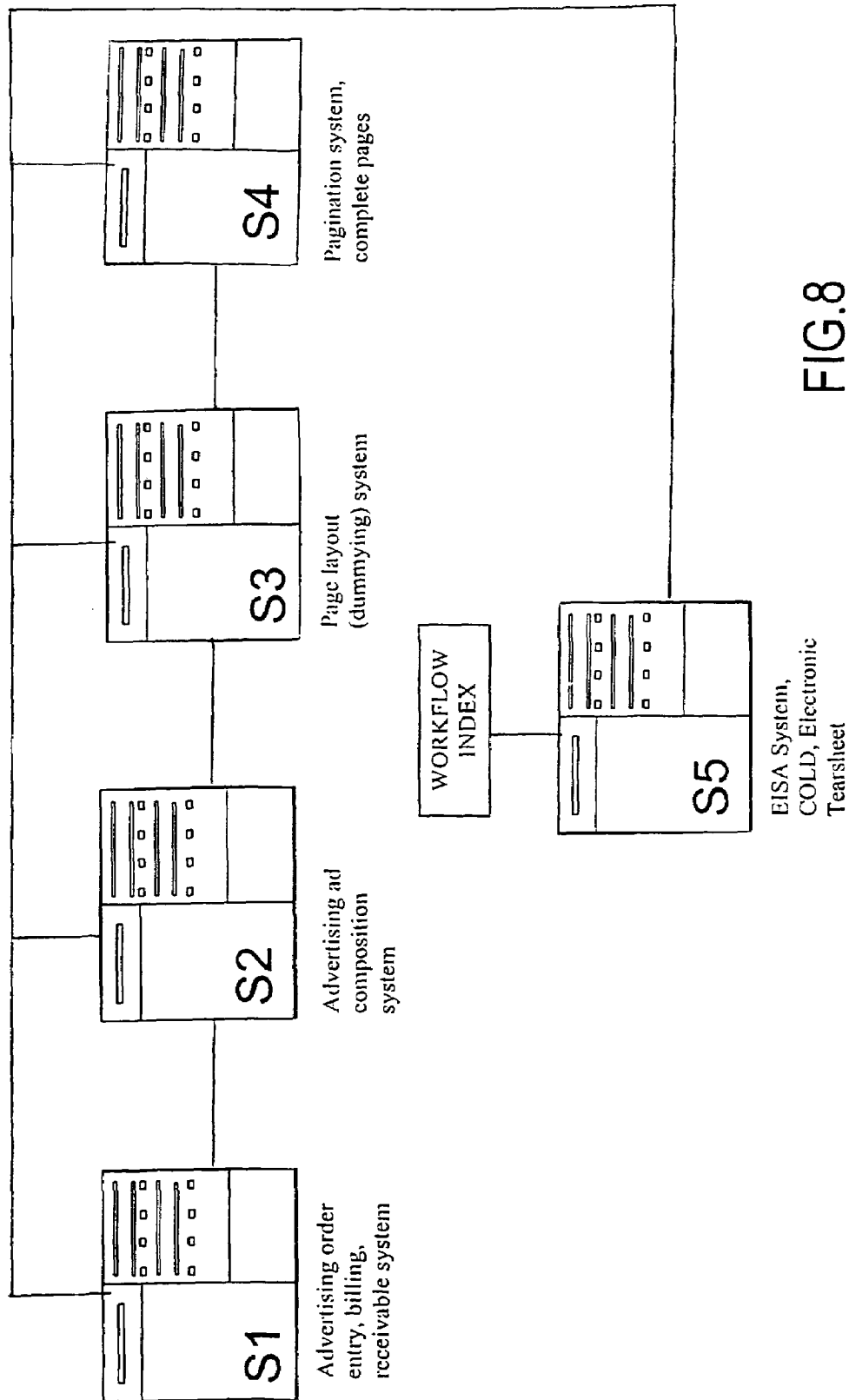


FIG. 8

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## SYSTEM OF GENERATING BILLING STATEMENTS FOR PUBLISHED ADVERTISING

This application is a continuation-in-part of U.S. appli- 5  
cation Ser. No. 09/418,744 filed 15 Oct. 1999 now U.S. Pat.  
No. 6,505,173.

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention relates to means for creating a  
billing statement for a publishing business automatically and  
digitally with links to associated advertising copy and the  
published page containing such advertising copy.

#### 2. Discussion of Related Art

Publishers of periodicals and dailies derive significant  
revenue from printing advertisements in their publications.  
Traditionally, the method of billing the advertiser, or cus-  
tomer, for the publication of the customer's advertisement is  
to send a billing sheet, or statement, listing the date of  
publication, an advertisement identifier, and the charge for  
the advertisement. Along with each billing line item is  
included a copy of the advertisement and a copy of the actual  
page or pages on which the advertisement was published. 25  
These hard copies of the advertisements and page are often  
called tearsheets. The tearsheets were, in the past, manually  
created by persons who gathered the physical tearsheets and  
attached them to the billing statements, resulting in a great  
expenditure of labor. Also, the billing statement created in  
this way can become physically bulky and unnecessarily  
hard to handle and expensive to deliver to the customer.

Therefore, there exists a need to automate this billing  
process and digitize it to make for easier storage, retrieval,  
and delivery.

### SUMMARY OF THE INVENTION

The present invention provides for automated creation,  
and if desired, removable storage and delivery of billing  
statements for published advertisements. A method accord-  
ing to the present invention requires that the advertisement  
copy and the page on which it is published, if different, both  
be put in a digital document format such as tiff, jpeg, pdf, or  
the like; and assigned unique customer, or advertiser, iden-  
tifiers, such as serial numbers, identifying numbers, unique  
names, or the like associated with the document. The adver-  
tisement copy and the page may contain cross referenced  
indicators. For example, the information header on the  
advertisement copy may contain information on its page  
location, while the page document information header may  
contain information on each customer having an advertise-  
ment thereon.

The advertisement copy and page files of images and their  
associated information headers are created; whether by 55  
original composition on a digital publishing system or  
through later digitization by scanning or the like; and stored  
in a first, or first and second publications searchable data-  
base. A billing statement application is then overlayed on, or  
interfaced with, the publication's databases in order to  
match the unique identifiers of the customers in the state-  
ment application to the unique customer identifiers in the  
publications databases. A search and retrieve command is  
sent to identify each advertisement and its associated page,  
within a particular date range and for a particular publica-  
tion, if the publication database file structure makes this  
necessary. Copies of the digital documents representing the

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published advertisement copy and its associated page are  
linked, or referenced, to the billing document line items and  
stored as files within the billing statement application.  
Access from one of the digital documents to any other of its  
associated digital documents is enabled, e.g., in the manner  
of hypertext links, so that the publisher and the party being  
billed may select, display, and examine any document, in  
essence creating an electronic billing statement and tearsheet  
system without the need for manual labor.

10 In some aspects of the invention, the present invention  
may be used to interface with each of the publisher's  
electronic applications and databases to access, retrieve, and  
coordinate the processes necessary to accomplish electronic  
management of the production and billing process to the  
client.

The billing statement, and each associated advertisement  
copy and page image, may then be electronically accessed  
through links to one another for viewing and verification and  
may be transmitted electronically or stored on removable  
digital storage media such as diskettes or CD-Roms as  
desired for permanent record and shipping to the customer.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a billing statement document according to the  
present invention.

FIG. 2 illustrates a computer system for running a billing  
system according to the present invention.

FIG. 3 illustrates an advertisement, or ad copy, retrievable  
by the present invention.

FIG. 4 illustrates the publication page on which the  
advertisement copy appears.

FIG. 5 schematically illustrates the digital billing state-  
ment, or invoice of the present invention document.

FIG. 6 schematically illustrates the digital advertisement  
copy document and information statement.

FIG. 7 schematically illustrates the digital publication  
page containing the advertisement copy and an information  
header thereof.

FIG. 8 schematically illustrates an aspect of the present  
invention whereby independent machines or multiple plat-  
forms typical of a publisher's infrastructure are coordinated  
to electronically provide traditional publishing industry bill-  
ing services.

### DESCRIPTION OF PREFERRED EMBODIMENTS

Referencing FIGS. 1 and 2, a billing statement template  
10 is contained in the server of a computer system 12 within  
a billing statement application 14. The computer system 12  
further contains a publication database 16 generally associ-  
ated with an electronic publishing/composition application  
13 for the digital construction of stories, text, pictures,  
advertisements, and the like making up a publication such as  
a newspaper or magazine.

As seen in FIG. 3, an advertisement image copy 18  
comprising text, pictorial images, and the like; is contained  
in a digital advertisement document 20 which also contains  
an information header 22 containing a customer identifier,  
such as a unique name, number, or the like associated with  
the customer paying for the publication of the image copy  
18.

Referencing FIG. 4, the advertisement image copy 18,  
when it is to be published, is digitally placed within a page  
site 24 of a publication, along with other images 26, text files  
28, and the like which make up that page 24 of the

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publication. The page site **24** contains an information header **30** containing such information as the publication name, date, page number, document file identifiers, advertiser customer identifier listings, etc.

Referencing FIG. **5**, the billing statement or invoice **10** has a customer identifier **32** which may be the same as a customer identifier **34** in the publication database **16** or the two customer identifiers may be cross referenced in the billing statement application **14**.

Referencing FIG. **6**, the digital advertisement document **20** contains an information header **22** with all relevant information such as the customer identifier **34** and an advertisement copy serial number **36** identifying the particular image **18** of the advertisement which is preferably a separate file within the advertisement document **20**.

Referencing FIG. **7**, the page site **24** is a document, or group of cross referenced documents, with an information header **30** detailing the publication number **38**, the page number **40**, publication date **42**, and a list of the customers identifiers **44** for the advertisements placed on that page.

With the information headers as shown in FIGS. **6** and **7**, a search and retrieve routine can be initiated from the billing statement application **14** for an individual customer by specifying a customer identifier and any qualifying ranges for the billing cycle such as a date range, publication volume numbers, etc. The customer identifiers may be cross matched as necessary between the billing statement application and the publishing application through the use of look up tables, a precompiled and referenced association table, or the like. The search will then take place in the publication database either in the advertisement copy information headers database **46** or the page site information headers database **48**, or both, depending on how the publication application has allotted the customer identifiers and linked the associated advertisement images between the advertisement copy database and the page site database. Each instance of a customer identifier number "hit", or retrieval, will have an associated advertisement copy number and data identifier associated therewith. Each instance of a customer's advertisement being published then is listed as a line item, logo **50**, on the billing statement **10**. Copies of the digital advertisement document **20** and the page site **24** are retrieved, cross referenced to the line items **50** and the billing statement **10**, and stored in, or with, the billing statement application **14** and in addition may be printed to removable storage **52** or downloaded as by telephone line **54** to the customer's information systems (not shown). It is desirable in each embodiment of the invention that the display of the associated billing, advertisement, and page documents be linked so that any one of the documents may be accessed and displayed from a display of its related documents.

Referring to FIG. **8**, there is shown a system of independent machines or multiple platforms typical of a publisher's infrastructure which is then coordinated by aspects of the present invention to electronically provide traditional billing services.

Server **S1** is digital system used by a publisher for its advertising order entry functions including advertising order entry, billing, and an accounts receivable system. The advertising order entry Server **S1** may be a stand alone machine with a unique software platform and contains digital applications and storage specific to the Server **S1** functions. Such server systems are known in the art. On Server **S1**, an advertisement, also referred to as an "ad", can be scheduled, information about the ad entered, e.g., the run date, placement request, size, proof request, color, and other information specific to this ad. The ad specific information can be

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retrieved from the Server **S1** database using the customer identifier, e.g., the account number, this ad is entered under.

Server **S2** is digital system used by a publisher for its Advertising ad composition functions. The advertising ad composition Server **S2** may, like Server **S1**, also be a stand alone machine with a unique software platform which contains digital applications and storage specific to the Server **S2** functions. Such server systems are known in the art. Ad identifier information can be sent from Server **S1** to create a file containing the information needed to compose the ad, e.g., the ad number, size, run date, proof request, color, etc. Text for the ad may be entered, and artwork can be scanned or retrieved from an archive or database of the Server **S2**. Server **S2** allows the ad to be composed, output for proofing, and have corrections made and, when the ad is completed and ready for publication, the ad is marked as suitable to publish. Server **S2** may archive ads for use in later publications.

Server **S3** is digital system used by a publisher for its page layout functions. The advertising ad composition Server **S3** may, like Server **S1** and Server **S2**, also be a stand alone machine with a unique software platform which contains digital applications and storage specific to the Server **S3** functions. Such server systems are known in the art. Ad information is sent from Server **S1** or **S2** or both, e.g., the ad number, size, position request, section request, publication, run date, etc. for use in the page layout function. The software of Server **S3** may contain rules specific to the publisher regarding ad placement whereby the system automatically places ads on pages based on rules and algorithms, which the layout person has the ability to override. When all ads are placed satisfactorily, a file can be sent to **S1** containing the ad number, publication, section, page number, date, and the work order status for the ad can be updated in Server **S1**. Information about each page can also sent to Server **S4**, described below, defining the geometry of each page in the publication. This information may include the ad number, page number, section, date, and the co-ordinates for the ad to fit on the page.

Server **S4** is digital system used by a publisher for its pagination system functions. The advertising ad composition Server **S4** may, like Servers **S1-S3**, also be a stand alone machine with a unique software platform which contains digital applications and storage specific to the Server **S4** pagination system functions. Such server systems are known in the art. Server **S4** receives information from **S3** on the page geometry of the ads. A pagination terminal operator places news material, photos, charts, etc. on the page in open positions that the layout system (Server **S3**) has reserved for news, or editorial, material. When all ads, news, etc., are positioned on the page, a PDF file of the complete page can be created and stored on Server **S4**. The PDF file can be stored on Server **S4** for short term archiving and the PDF file can be output to an imaging device that creates a page negative used to produce printing plates.

Server **S5** is a digital system according to the present invention which can be used by a publisher for coordinating each of its billing system, advertising ad composition, page layout, and pagination functions of Servers **S1-S4**. Server **S5** can also be a stand alone machine with a unique software platform which contains digital applications and storage specific to its functions.

Server **S5** is where a Workflow Index is created that accesses, receives, and coordinates information from Servers **S1-S4**. The Workflow Index file will contain information to allow the present invention to access information about the publication and billing processes contained on other



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servers. In the present example, Server S1 provides ad scheduling and billing information, Server S2 provides the finished composed ad and information necessary to send an electronic proof of the ad, Server S3 provides page number and other information necessary to retrieve the fully composed page to create the electronic tearsheet, and Server S4 provides a digital representation of page or ad images, e.g., in PDF format, of the composed page. The Workflow Index through the establishment of links between each associated part of a billing statement and tearsheet system contained on the other servers, may thus enable a user to generate access and display the digitally formatted documents necessary to accomplish an effective electronic billing statement for published material.

The workflow index further provides linkage between each billing statement component, and enables a system user to access any billing statement component from another billing statement component and view said components through an I/O interface, such as a printer or viewing screen of the user (not shown), according to the present invention. For example, Server S5 may further allow functions including the viewing of an entire publication page by clicking on a displayed ad number on a billing statement screen or the viewing of an individual ad by clicking on a displayed ad number on a billing statement screen. A client who is remote from the publisher, such as an advertising agency or an advertiser, may be granted access to view statements, individual ads, and page displays by a secure internet connection. Access to digital publication pages and ads can be provided even before a billing statement is produced, by accessing the digital publication pages or ads through the Workflow Index. Electronic mail notification may be sent to advertisers or agencies that a digital publication page is available for viewing or the present invention can provide for the electronic mailing of digital publication page or ad images, e.g., in compressed PDF format, along with any other necessary or desired identifying information. Electronic watermarks may be provided on each page for authenticity verification.

Server S5 further allows digital archiving of the publisher's billing components including the billing statement, the page copy and the ad copy. Thus all billing components may be archived and recorded, such as by a computer output to a laser disk (COLD) system.

Server S5 may further allow an electronic proofing process between the publisher and the remote client by providing software and hardware functionality to electronically mail notice to the client that a proof image of an ad or a page is ready to access or provide for electronic mailing of a digital representation of page or ad images of the proof. Further the present invention may automatically generate electronic mail to a remote client at a set time of day based on indicators in the Workflow Index. Such remote communications are desirably accomplished by secure internet access.

While referred to as files, documents, and sites, it will be appreciated that there are myriad ways to cross reference, store, and process the relevant image blocks going into the advertisement copy and page site make up. The examples of the Preferred Embodiment are intended to be illustrative only and the invention herein is limited only by the appended claims.

We claim:

1. A method of constructing a billing statement for advertising customers placing advertisements in printed publications, comprising:

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- a. creating a printed advertisement image for an advertising customer on a printed publication page in a publication with additional pages of images and text advertisement;
- b. establishing a unique customer identifier for the advertising customer;
- c. creating a first digital document representing at least the printed advertisement image with a unique advertisement identifier and associating the unique customer identifier with the advertisement identifier;
- d. creating a second digital document representing an invoice for printed advertisements and associating the unique customer identifier with the invoice and providing the advertising customer with the invoice; and
- e. enabling the advertising customer to access to the first digital document through the second digital document to view the advertisement image and verify publication of the advertisement.

2. The method of claim 1 further including the step of forwarding the first digital document representing at least the printed advertisement image and the second digital document representing an invoice for printed advertisements to the advertising customer.

3. The method of claim 1 further including the step of creating a third digital document representing the printed publication page image containing the advertisement image and associating the third digital document with the unique advertisement identifier and enabling the advertising customer to access to the third digital document through the second digital document.

4. The method of claim 1 further including the step of creating a third digital document representing the printed publication page image containing the advertisement image and associating the third digital document with the unique advertisement identifier and enabling the advertising customer to access to the third digital document through the first digital document.

5. The method of claim 1 further including the step of creating a third digital document representing the printed publication page image containing the advertisement image and associating the third digital document with the unique advertisement identifier and enabling the advertising customer to access to any of the first, second, and third digital documents through any of the first, second, and third digital documents.

6. A method of constructing a billing statement for advertising customers placing advertisements in printed publications with additional pages of images and text advertisement, comprising:

- a. creating a printed advertisement image for an advertising customer on a printed publication page in a publication with additional pages of images and text advertisement;
- b. establishing a unique customer identifier for the advertising customer;
- c. creating a first digital document representing at least one of the printed advertisement image or the printed publication page with a unique advertisement identifier, and associating the customer identifier with the unique advertisement identifier;
- d. creating a second digital document representing an invoice having a line item billing for advertisements of the advertising customer and associating the unique customer identifier with the invoice and providing the advertising customer with the invoice; and
- e. enabling the advertising customer to access to the first digital document through a line item of the invoice to

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view the first digital document in human readable form and verify publication of the advertisement.

7. A method of constructing a billing statement for advertising customers placing advertisements in printed publications with additional pages of images and text advertisement, comprising:

- a. establishing a unique customer identifier for an advertising customer;
- b. creating a first digital document representing a printed and published advertisement image for the advertising customer with a unique advertisement identifier and associating the unique customer identifier with the unique advertisement identifier;
- c. creating a second digital document representing a printed and published publication page image containing the printed and published advertisement image as the published publication page image appears in a publication with additional pages of images and text advertisement and associating the second digital document with the unique advertisement identifier;
- d. creating a third digital document representing an invoice for printed and published advertisements including a form for specifying an identifier range for invoiced printed and published advertisements with the invoice and providing the advertising customer with the invoice and the form;
- e. finding the first digital document by searching the unique customer identifier in a first database and copying the first digital document to an invoice database;
- f. finding the second digital document and copying the second digital document to the invoice database;
- g. storing the first and second digital documents in a common file associated with the third digital document; and
- h. enabling the advertising customer to access at least one of the first and second digital documents through the third digital document to view the first digital document in human readable form and verify publication of the advertisement.

8. A method of constructing a billing statement for advertising customers placing advertisements in printed publications with additional pages of images and text advertisement, comprising:

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- a. establishing a unique customer identifier for an advertising customer to be billed;
- b. creating a digital billing invoice document and associating the digital billing invoice document with the unique customer identifier and storing the digital billing invoice document in an invoice file and providing the advertising customer with the invoice;
- c. creating a printed advertisement image for the advertising customer on a printed publication page;
- d. creating a digital advertisement document representing the printed advertisement image with a unique advertisement identifier and associating the unique customer identifier with the unique advertisement identifier and storing the digital advertisement document in an advertisement database;
- e. creating a digital publication page representing the printed publication page in a publication with additional pages of images and text advertisement, with the digital advertisement document thereon, and having a unique page identifier; and associating the unique page identifier with the unique advertisement identifier and storing the digital publication page document in a publication page database;
- f. enabling the advertising customer to search for the digital advertisement document in the advertisement database according to the customer identifier, identifying the digital advertisement document according to the customer identifier, and displaying the identified digital advertisement document in human readable form;
- g. enabling the advertising customer to search for the digital publication page associated with the digital advertisement document in the publication page database and displaying the identified digital advertisement document in human readable form; and
- h. enabling the advertising customer to cross reference the billing invoice, advertisement, and publication page digital documents from the invoice file to view the first digital document in human readable form and verify publication of the advertisement.

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